

WHAT IS CLAIMED IS:

1. A racing game machine, comprising:
2. a racing track;
3. a traveling field, on which platen dots are provided, extending below
4. the racing track;;
5. a plurality of self-propelled members provided on the traveling field,
6. each self-propelled member including:
7. a first yoke, which constitutes a first linear motor together
8. with the platen dots for propelling the self-propelled member in a first direction
9. on the traveling field;
10.
11. a second yoke, which constitutes a second linear motor
12. together with the platen dots for propelling the self-propelled member in a
13. second direction which is perpendicular to the first direction; and
14. a first magnet provided in an upper portion of the
15. self-propelled member; and
16. a plurality of miniature members, which are provided on the racing
17. track to be raced with each other while being associated with the respective
18. self-propelled members, each miniature member including:
19. front wheels and rear wheels provided on a bottom face
20. thereof for supporting the miniature member on the racing track, the front
21. wheels being provided as caster wheels; and
22. a second magnet provided in a front side of the caster
23. wheels while being magnetically coupled with the first magnet.

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- 1 2. The game machine as set forth in claim 1, wherein ball bearings are
- 2 provided on the bottom face of the self-propelled member to assist the
- 3 propelling on the traveling field.

- 1 3. The game machine as set forth in claim 1, wherein each of the first
- 2 yoke and the second yoke is formed with three legs provided with coils, to
- 3 constitute three-phase linear motors.

- 1 4. The game machine as set forth in claim 3, wherein a lower end
- 2 portion of each leg is split into plural projections each having an identical width
- 3 with a width of each of the platen dots.

- 1 5. The game machine as set forth in claim 2, wherein the ball bearings
- 2 are composed of at least three independent ball bearings.

- 1 6. The game machine as set forth in claim 2, wherein the ball bearings
- 2 are supported within an annular retainer formed on the bottom face of the
- 3 self-propelled member to constitute a thrust bearing.

- 1 7. The game machine as set forth in claim 1, wherein nozzles from
- 2 which air is blown toward the bottom face of the self-propelled member are
- 3 formed on the traveling field to form an air bearing layer between the bottom
- 4 face and the traveling field to support the self-propelled member thereon.

1 8. The game machine as set forth in claim 7, wherein a skirt member is
2 formed on a peripheral portion of the bottom face of the self-propelled member.

1 9. The game machine as set forth in claim 1, wherein the self-propelled
2 member includes a compressor for blowing compressed air toward the
3 traveling field through nozzles formed on the bottom side thereof, to form an
4 air bearing layer between the bottom face and the traveling field to support the
5 self-propelled member thereon.

1 10. The game machine as set forth in claim 1, wherein the second
2 magnet is pivotable about a pivot center provided on the bottom face of the
3 miniature member at a front side of the front wheels.

1 11. The game machine as set forth in claim 1, wherein the miniature
2 member includes a ball bearing provided on the bottom face thereof in the
3 vicinity of the second magnet, for supporting the miniature member on the
4 racing track.

1 12. The game machine as set forth in claim 1, wherein the second
2 magnet is rotatable about a rotation center provided on the bottom face of the
3 miniature member at a front side of the front wheels.

1 13. The gaming machine as set forth in claim 2, wherein:
2 the ball bearings are made of metal, and
3 a conductive layer is formed on the traveling field for supplying power

4 to the linear motors of the self-propelled member via the ball bearings.